

## ARTIFACT SHEET

Enter artifact number below. Artifact number is application number + artifact type code (see list below) + sequential letter (A, B, C ...). The first artifact folder for an artifact type receives the letter A, the second B, etc..  
Examples: 59123456PA, 59123456PB, 59123456ZA, 59123456ZB

09368505 BA

Indicate quantity of a single type of artifact received but not scanned. Create individual artifact folder/box and artifact number for each Artifact Type.

☐

CD(s) containing:

computer program listing

Doc Code: Computer

pages of specification

and/or sequence listing

and/or table

Doc Code: Artifact

content unspecified or combined

Doc Code: Artifact

☐

Artifact Type Code: P

☐

Artifact Type Code: S

☐

Artifact Type Code: U

☐

Stapled Set(s) Color Documents or B/W Photographs

Doc Code: Artifact    Artifact Type Code: C

☐

Microfilm(s)

Doc Code: Artifact    Artifact Type Code: F

☐

Video tape(s)

Doc Code: Artifact    Artifact Type Code: V

☐

Model(s)

Doc Code: Artifact    Artifact Type Code: M

☒

Bound Document(s)

Doc Code: Artifact    Artifact Type Code: B

☐

Confidential Information Disclosure Statement or Other Documents marked Proprietary, Trade Secrets, Subject to Protective Order, Material Submitted under MPEP 724.02, etc.

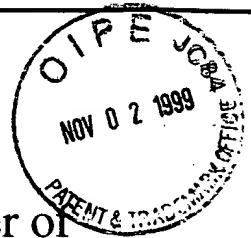
Doc Code: Artifact    Artifact Type Code X

☐

Other, description: \_\_\_\_\_

Doc Code: Artifact    Artifact Type Code: Z

The  
United  
States  
of  
America



The Commissioner of  
Patents and Trademarks

*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this*

United States Patent

*Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.*

*If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.*

*If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extension.*

*Bence Lehman*

Commissioner of Patents and Trademarks

*Margaret V. Turner*

Attest



US005653360A

**United States Patent** [19][11] **Patent Number:** **5,653,360****Brandhorst et al.**[45] **Date of Patent:** **\*Aug. 5, 1997**[54] **DEVICE FOR EMPTYING A FILM TUBE**

[56]

**References Cited**

[75] **Inventors:** Gerd Brandhorst, Landsberg;  
 Wolf-Dietrich Herold, Seefeld; Ralf  
 Heiduczek, Gröbenzell, all of Germany

[73] **Assignee:** Thera Patent GmbH & Co. KG  
 Gesellschaft für Industrielle  
 Schutzrechte, Seefeld, Germany

[\*] **Notice:** The term of this patent shall not extend  
 beyond the expiration date of Pat. No.  
 5,501,368.

[21] **Appl. No.:** **574,697**[22] **Filed:** **Dec. 19, 1995****Related U.S. Application Data**

[63] **Continuation of Ser. No. 371,219, Jan. 11, 1995, Pat. No.**  
**5,501,368.**

[30] **Foreign Application Priority Data**

Jan. 13, 1994 [DE] Germany ..... 9400524 U

[51] **Int. Cl.<sup>6</sup>** ..... **B65D 35/28**

[52] **U.S. Cl.** ..... **222/95; 222/326**

[58] **Field of Search** ..... **222/95, 105, 326,**  
**222/327, 386, 386.5**

**U.S. PATENT DOCUMENTS**

2,477,875	8/1949	Hutchason	222/95
3,815,787	6/1974	Spies	222/95
5,069,364	12/1991	McGill	222/326
5,150,820	9/1992	McGill	222/326
5,286,105	2/1994	Herold et al.	366/177
5,322,122	6/1994	Jennings, Jr.	166/307
5,501,368	3/1996	Brandhorst et al.	222/95

**FOREIGN PATENT DOCUMENTS**

2186544	8/1987	United Kingdom	222/95
---------	--------	----------------	--------

*Primary Examiner*—Philippe Derakshani  
*Attorney, Agent, or Firm*—Foley & Lardner

[57]

**ABSTRACT**

For emptying a film tube 15 containing a flowable substance, the front end of the tube is provided with a ring 17 the peripheral portion 19 of which exceeds the inner diameter of a cartridge 1 which receives the tube 15. The ring 17 has a conical sealing surface 20 which cooperates with a sealing edge 12 formed inside the cap 2. In operation, the cylindrical rear portion 7 of the cap 2 is slid onto a front portion 4 of the cartridge 1, whereby the ring 17 provided on the tube 15 has its sealing surface 20 centered and aligned in the radial and axial directions to ensure proper engagement between the sealing edge 12 and the sealing surface 20.

**5 Claims, 1 Drawing Sheet**